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**TOY SPHERE WITH CARD ELEMENTS SLIDABLY DISPOSED TO A PERIPHERY THEREOF**

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Equivalents:

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**Abstract**

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1 TOY SPHERE WITH CARD ELEMENTS SLIDABLY DISPOSED TO A  
2 PERIPHERY THEREOF

3 ABSTRACT OF THE DISCLOSURE

4 A toy sphere includes three circular members and each  
5 of which has an axis perpendicular with each other, the three  
6 circular members sharing a common center, each of the three  
7 circular members having a track defined in an outer periphery  
8 thereof and each of the tracks communicating with each other  
9 at intersections thereof, a plurality of tile elements each  
10 having a lower portion and an upper portion with a neck  
11 connected therebetween such that the lower portion and the  
12 neck of each of the tile elements are slidably received in  
13 the tracks.  
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1 TOY SPHERE WITH CARD ELEMENTS SLIDABLY DISPOSED TO A  
2 PERIPHERY THEREOF

3 BACKGROUND OF THE INVENTION

4 1. Field of the Invention

5 The present invention relates to a toy sphere and  
6 more particularly, to a toy sphere with tile elements  
7 slidably disposed to a periphery thereof and a user may shift  
8 the tile elements disposed thereon to arrange the tile  
9 elements into a desired form.

10 2. Brief Description of the Prior Art

11 A good toy should have some characters which includes:

12 (1) The toy should be safe such that there is no  
13 possible harm for a user operating the toy.

14 (2) The toy should have a feature of stimulating the  
15 brainpower of the user.

16 (3) The toy is able to be operated in a variety of  
17 ways to operate it such that the user can concentrate his/her  
18 attention on the toy and enjoy the toy.

19 One of such typical toys is called "Rubik's Cube" or  
20 "magic cube" which is a cube and each one of six sides of the  
21 magic cube is divided into nine elements with the same color,  
22 every row and every column of the elements in each side can  
23 be respectively rotated about a vertical axis and a  
24 horizontal axis. Before operating the magic cube, all of the  
25 elements are arranged to be an irregular form, that is each  
26 one of six sides has more than two colors of elements, a user  
27 is then required to operate the magic cube to arrange the  
28 colors of the elements to be a certain form, such as to  
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1        arrange all the elements with the same color on the same  
2        side of the cube. The magic cube only provides the user the  
3        chance to rotate the elements, the user cannot shift the  
4        elements by sliding on any one of the six sides.

5                Another toy is a rectangular plate on which nine  
6        positions are defined, each one of the nine positions has the  
7        same size and there have eight tiles disposed to the plate. A  
8        user can shift one of the tiles to the remaining empty  
9        position and by this manner the eight can be re-arranged to  
10       be a certain pattern. This toy only provides the user a  
11       chance to slide the tiles.

12               The present invention intends to provide an improved  
13       toy which is a sphere with tile elements disposed thereto  
14       wherein the sphere is composed of three circular members and  
15       each of the circular members are perpendicular with each  
16       other. The tile elements can have their positions changed by  
17       moving along the three circular members so as to mitigate  
18       and/or obviate the above-mentioned problems.

19               SUMMARY OF THE INVENTION

20               The present invention provides a toy sphere which  
21       includes three circular members sharing the same center, each  
22       of the three circular members having an axis and the three  
23       axes being arranged to be perpendicular with each other. Each  
24       one of the three circular members has a track defined in an  
25       outer periphery thereof and the three tracks communicate with  
26       each other at intersections. A plurality of tile elements  
27       each have a lower portion and an upper portion, with a neck  
28       connecting the lower portion and the upper portion. The lower  
29

1        arrange all the elements with the same color on the same  
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12               The present invention intends to provide an improved  
13       toy which is a sphere with tile elements disposed thereto  
14       wherein the sphere is composed of three circular members and  
15       each of the circular members are perpendicular with each  
16       other. The tile elements can have their positions changed by  
17       moving along the three circular members so as to mitigate  
18       and/or obviate the above-mentioned problems.

19               SUMMARY OF THE INVENTION

20               The present invention provides a toy sphere which  
21       includes three circular members sharing the same center, each  
22       of the three circular members having an axis and the three  
23       axes being arranged to be perpendicular with each other. Each  
24       one of the three circular members has a track defined in an  
25       outer periphery thereof and the three tracks communicate with  
26       each other at intersections. A plurality of tile elements  
27       each have a lower portion and an upper portion, with a neck  
28       connecting the lower portion and the upper portion. The lower  
29

1       portion and the neck of each of the tile elements are slidably  
2       engaged with the tracks such that the tile elements can be  
3       shifted along the three tracks.

4             It is an object of the present invention to provide a  
5       toy sphere on which a plurality of tile elements are shifted  
6       along tracks defined in an outer periphery of the toy sphere.

7             It is another object of the present invention to  
8       provide a toy sphere on which tile elements can be shifted  
9       along a single, respective track or be shifted to other  
10      tracks.

11            Other objects, advantages, and novel features of the  
12      invention will become more apparent from the following  
13      detailed description when taken in conjunction with the  
14      accompanying drawings.

#### 15                   BRIEF DESCRIPTION OF THE DRAWINGS

16            Fig. 1 is a perspective view of a toy sphere in  
17      accordance with the present invention;

18            Fig. 2 is an exploded view of a first embodiment of  
19      the toy sphere in accordance with the present invention;

20            Fig. 3 is a side elevational view, partly in section,  
21      of a tile element received in a track;

22            Fig. 4 is a view similar to Fig. 3 to show another  
23      type of tile element received in a track, and

24            Fig. 5 is an exploded view of a second embodiment of  
25      the toy sphere in accordance with the present invention.

#### 26                   DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

27            Referring to the drawings and initially to Figs. 1  
28      through 3, a toy sphere in accordance with the present  
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1 invention generally includes three circular members 1a , 2a  
2 and 3a which share the same center. Each of the three circular  
3 members 1a, 2a and 3a has an axis perpendicularly extending  
4 through a center of a plane where the respective circular  
5 member 1a/2a/3a is located and the three axes are arranged  
6 to be perpendicular with each other. Each one of the three  
7 circular members 1a, 2a and 3a has a track defined in an  
8 outer periphery thereof and the three tracks communicate with  
9 each other at intersections therebetween.

10 The toy sphere is composed by four one-fourth sphere  
11 portions 30, each one of the one-fourth sphere portions 30  
12 including a part of each of the three circular members 1a,  
13 2a, 3a. As seen in Fig. 2, the one-fourth sphere portion 30  
14 includes a part 301 of the circular member 1a and a part 303  
15 of the circular member 3a, each of the two parts 301/303 is a  
16 half circular section of the respective circular member  
17 1a/3a. A part 302 of the circular member 2a is connected  
18 between a respective middle point of the two parts 301, 303  
19 curved peripheries and each of the curved peripheries 301,  
20 302, 303 having an upper layer 31 and a lower layer 32 and a  
21 perpendicular connecting portion 34 connected between the  
22 upper layer 31 and the lower layer 32. The lower layer 32  
23 extends longer than the upper layer 31 such that any two  
24 opposite upper layers 32 define a track therebetween, such as  
25 positions where the numerals 322, 324 lead to. The lower  
26 layer 32 has studs 306 extending laterally therefrom and  
27 recesses 38 defined laterally therein such that the two  
28 adjacent one-fourth sphere portions 30 can be combined  
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1 together by mutually inserting the studs 36 into the recesses  
2 38. Furthermore, each of the studs 36 has a flange 362 (see  
3 Fig. 3) extending radially from a periphery thereof so as to  
4 securely received in the respective recess 38, by means of an  
5 interference fit.

6 A plurality of tile elements 20 each have a lower  
7 portion 24 and an upper portion 22, a neck 26 connected  
8 between the lower portion 24 and the upper portion 22 such  
9 that the lower portion 24 and the neck 26 are slidably  
10 engaged with the tracks 322, 324. The upper portion 22 has a  
11 flat upper surface.

12 Accordingly, when a user (not shown) plays with the  
13 toy sphere, he/she is required to shift the tile elements 20  
14 along the three tracks of the circular members 1a, 2a, 3a to  
15 arrange the tile elements 20 into a certain or required  
16 pattern. The tile elements 20 can be shifted along a certain  
17 track or be transferred to other tracks at the intersecting  
18 positions of two tracks such that the toy sphere has variety  
19 of ways in which the tile elements 20 thereof can be shifted  
20 and is suitable to be operated by children or adults.

21 Fig. 4 shows another embodiment of the tile element  
22 20' wherein an upper surface of the tile element 20 is an  
23 arcuate surface.

24 Fig. 5 shows a second embodiment of the toy sphere  
25 wherein the toy sphere is composed eight one-eighth sphere  
26 portions 40, each of which is configured as a half of the  
27 one-fourth sphere portions 30 shown in Fig. 2 when divided  
28 from a central center of the track 324 of the part 302 of the  
29

1 together by mutually inserting the studs 36 into the recesses  
2 38. Furthermore, each of the studs 36 has a flange 362 (see  
3 Fig. 3) extending radially from a periphery thereof so as to  
4 securely received in the respective recess 38, by means of an  
5 interference fit.

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10 engaged with the tracks 322, 324. The upper portion 22 has a  
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13 toy sphere, he/she is required to shift the tile elements 20  
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16 pattern. The tile elements 20 can be shifted along a certain  
17 track or be transferred to other tracks at the intersecting  
18 positions of two tracks such that the toy sphere has variety  
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23 arcuate surface.

24 Fig. 5 shows a second embodiment of the toy sphere  
25 wherein the toy sphere is composed eight one-eighth sphere  
26 portions 40, each of which is configured as a half of the  
27 one-fourth sphere portions 30 shown in Fig. 2 when divided  
28 from a central center of the track 324 of the part 302 of the  
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1 circular member 2a. Each of the one-eighth sphere portions 40  
2 also has an upper layer 42 and a lower layer 43 and, a  
3 perpendicular connecting portion 401 is connected between the  
4 corresponding upper layer 42 and the lower layer 43 such that  
5 a track 44 is defined between the upper layer 42 and the  
6 lower layer 43. The lower layer 43 has a plurality of studs  
7 46 extend laterally therefrom and recesses 48 defined  
8 laterally therein such that each of two one-eighth sphere  
9 portions 40 of the eight one-eighth sphere portions 40 can be  
10 combined together by receiving the studs 46 into the  
11 respective recesses 48 in the way described relating to Fig.  
12 2. Also, the tile element 20" has a neck 26' with a square  
13 cross-section and the tile element 20 in Fig. 2 has a neck 26  
14 with a round cross-section.

15 Although the invention has been explained in relation  
16 to its preferred embodiment, it is to be understood that many  
17 other possible modifications and variations can be made  
18 without departing from the spirit and scope of the invention  
19 as hereinafter claimed.  
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1     The embodiment of the invention in which an exclusive  
2     property or privilege is claimed are defined as follows:

3     1. A toy sphere comprising:

4             three circular members which share the same center,  
5     each of the three circular members having an axis and said  
6     three axes being arranged to be perpendicular with each  
7     other, each one of said three circular members having a track  
8     defined in an outer periphery thereof and said three tracks  
9     communicating with each other at intersections, and

10            a plurality of tile elements each having a lower  
11     portion and an upper portion, a neck connected between said  
12     lower portion and said upper portion, said lower portion and  
13     said neck being slidably received in said tracks.

14     2. The toy sphere as claimed in claim 1 wherein said sphere  
15     is composed by four one-fourth sphere portions, each of the  
16     one-fourth sphere portions having two semi-circular curved  
17     peripheries and a one-fourth circular curved periphery con-  
18     nected between said two semi-circular curved peripheries,  
19     each of said curved peripheries having an upper layer and a  
20     lower layer, said lower layer being longer than said upper  
21     layer, said lower layer having studs extending laterally  
22     therefrom and recesses defined laterally therein such that  
23     said two adjacent one-fourth sphere portions can be combined  
24     together by mutually inserting said studs into said recesses  
25     and said track is defined between by said two upper layers.

26     3. The toy sphere as set forth in claim 1 wherein each of  
27     said studs has a flange extending radially from a periphery  
28     thereof.

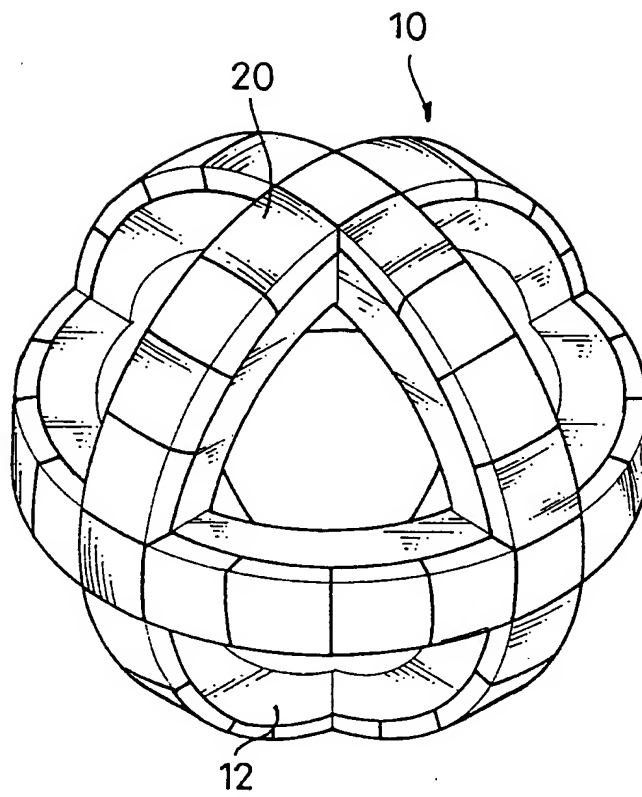


FIG. 1

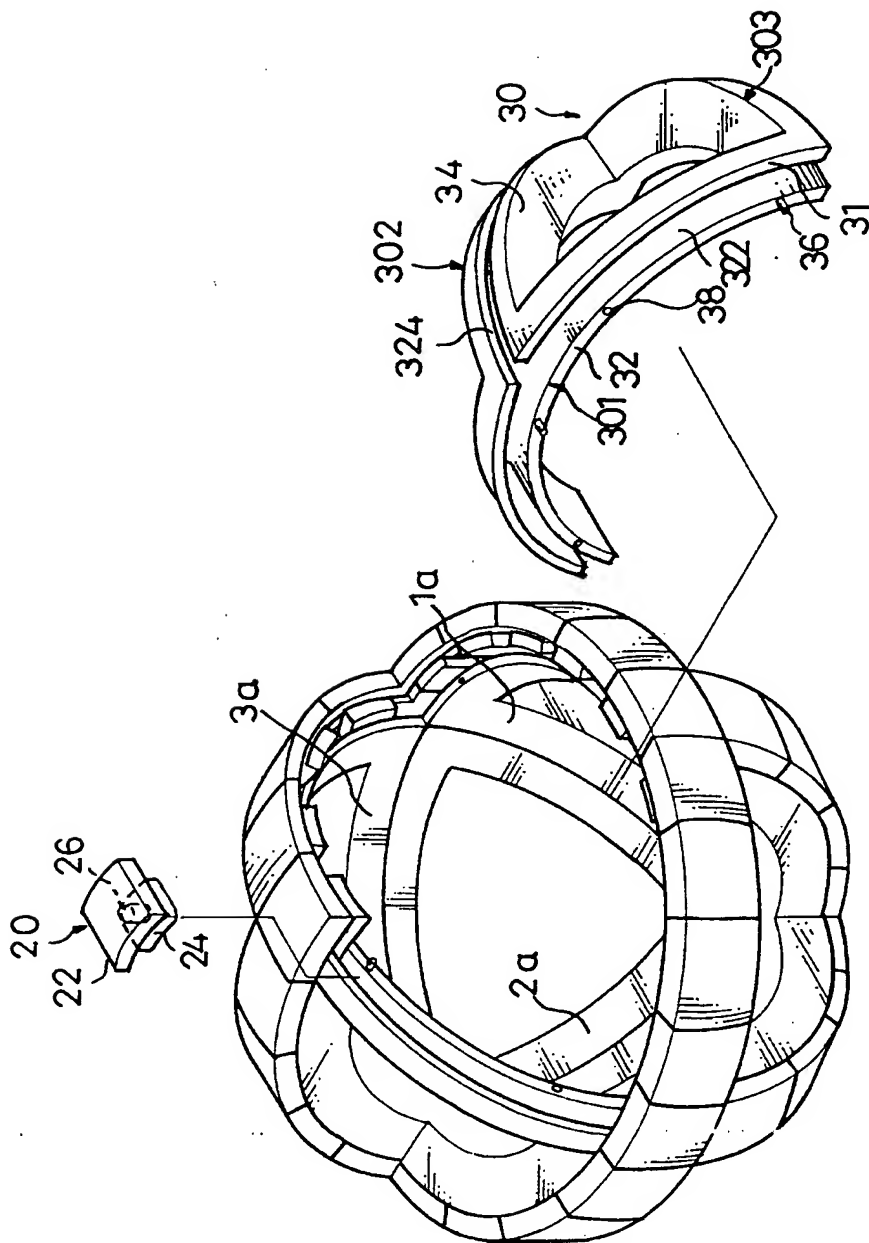


FIG. 2

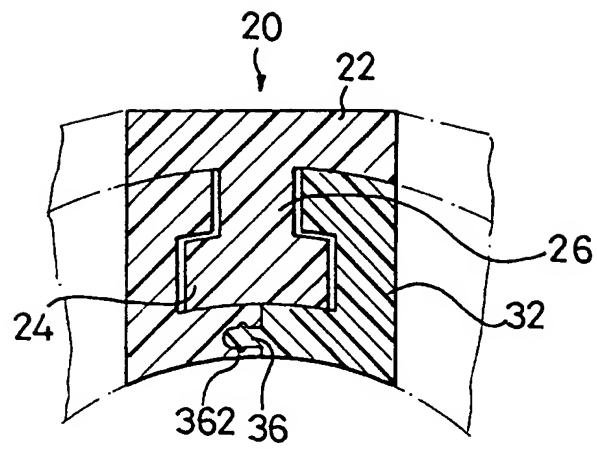


FIG. 3

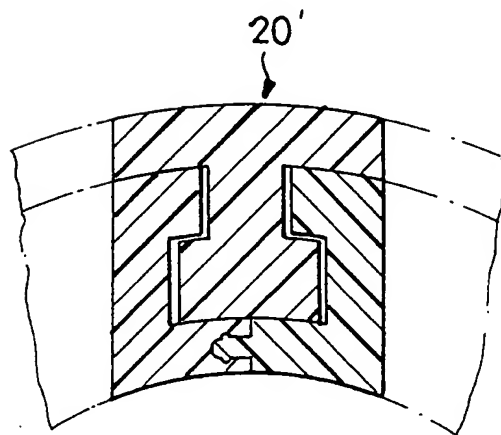


FIG. 4

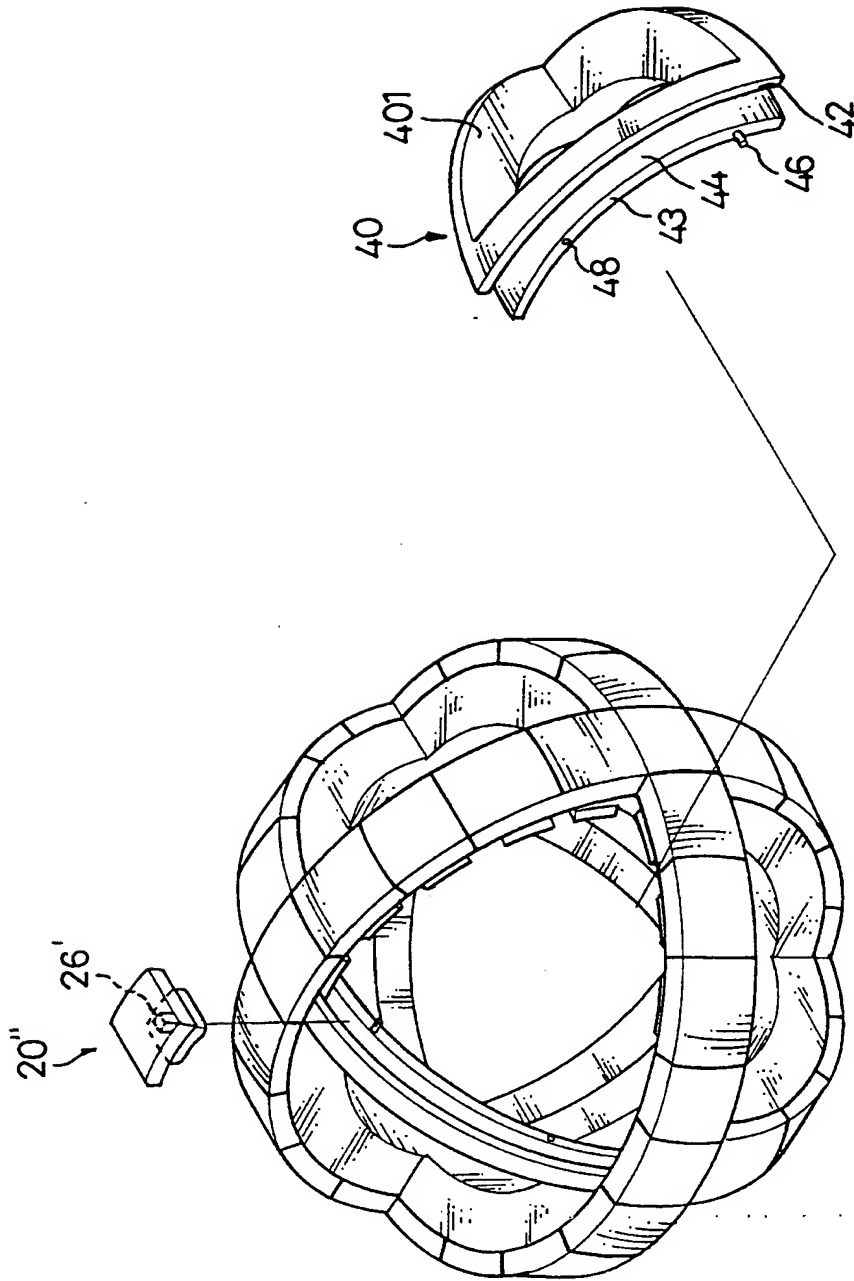


FIG. 5